straight up

THE MAGAZINE OF THE BUILDING OFFICIALS INSTITUTE OF NEW ZEALAND

DECEMBER 2017

In this month's issue:

BOINZ 2018 Training Schedule
Darryl O'Brien – The importance of air circulation for homes schools and businesses
Spotlight on a Member: Jack Lyons

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HRDIVISION

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recruitment@boinz.org.nz
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Building Officials Institute of NZ

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straight up

IN THIS ISSUE

Winds of Change

As we leave 2017 and enter 2018, the winds of change are already upon us. You can feel it, you can sort of smell it, but you can't yet see it.

The national election of 23rd September delivered New Zealand a centre-left Coalition Government lead by Prime Minister Jacinda Ardern. This new incoming Government signalled change, with references to "capitalism" as we know it, as more of a foe than a friend.

Clearly this newly formed Labour-NZF-Greens Coalition Government is about change, and a move from the status quo. Whether this change will it be revolutionary, transformational or incremental is too early to call, but the barometer of change was signalled early.

- Immigration will be cut by 30 000 per annum.
- The Government will embark on a 100 000; 2-billion-dollar affordable housing KiwiBuild Programme over 10 years.
- Foreign buyers will be banned from obtaining home and farms.
- There will be a strong focus on developing the regions.
- Monetary Policy will change.

In the building space, the Institute has read the winds of change well, irrespective of party politics. We have been preparing the much needed educational pipeline to increase building surveying, and in particular building control, numbers for the last 6 years. We read the numbers, understood the looming shortages within BCA's, and commenced work on bringing the in-employment cadetship model forward as an alternate pathway for the full time course for the new Diploma in Building Surveying. In taking on this responsibility we have with our partners, Otago Polytechnic, Future Skills and Skills Organisation delivered to the Building Consent Authority community a much needed pipeline of useful, educated, talented and qualified Building Surveyors.

With the new Government signalling their ambitious KiwiBuild programme, BCA's can no longer adopt a policy of "poaching" each other's' staff. It is time to invest in the future, resource well and mitigate risk, while also accepting that Building Surveying is no longer a skill you can purchase off the back of the construction industries "truck", because like many other construction and design skills they too will be in high demand.

Winds of change often produce "it's too risky" or "it's too costly" responses. Unfortunately this fear factor stifles opportunity and minimises how to explore and demonstrate long-term benefits associated with change. Now is the time to pre-emptively gather input and ideas on how to integrate new options in a changing environment.

The Institute is your professional support base, and you will see different approaches to how we support you and your employers over the next 18 months. What you can do for your Institute is to understand our direction and convey these opportunities to your colleagues and employers. In times of change everybody needs partners and friends, and the Institute is ideally placed to assist.

I have already started a new round of visiting BCA's throughout the country, explaining how the Institute is resourcing itself to support the sector with qualification, skill shortage and skills needs. The response to date has been rewardingly positive. A few "positive sceptics" have provided a good robust challenge, and often delivered benefits and catalysts to rethinking our options. That's the reason I call them "positive sceptics" as they assist in catching flaws early.

Our Briefing to the Incoming Minister (BIM) has been prepared on the basis the Institute is very keen to engage with Government and provide assistance in respect of the opportunities and barriers ahead. While opportunities are always welcome, many of the barriers are interrelated and frustrate a well-functioning regulatory building system with a need for quality as its core. Our sector skills are lacking, there are few incentives for practitioners to be accountable for their work, and the sector needs to be more productive.

Within our BIM, we have proposed a number of priorities we believe will overcome these barriers, particularly around sector skill enhancement, rebalancing risk and liability, making practitioners more accountable, penalising phoenixing and greater emphasis on product assurance.

Ultimately our goal is to aid the winds of change and provide optimal solutions to deliver better building outcomes.

Finally as we head into the festive season, I thank you for your support throughout the year and wish you and your families a very Merry Christmas and Happy New Year.

Nick Hill

Chief Executive

More Than Just A Bent Bit Of Metal

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2018 BOINZ TRAINING ACADEMY CALENDAR

JANUARY - JUNE 2018

FEBRUARY			
1 - 2 February 2018	TA007	Advanced Plan Processing	Palmerston North
12 - 16 February 2018	TA019	Plumbing and Drainage	Whangarei
14 - 16 February 2018	TA020	Fire Documents	Canterbury Region
19 February 2018	TA015 / TA016	Clause D1 Access Routes and Clause F1 Saftey of Users	Canterbury Region
26 - 28 February 2018	TA022	BWoF and Specified Systems	Wellington

MARCH			
5 - 16 March 2018	South Island Diploma Block Course	Combination of Essential Courses	Queenstown
8 - 9 March 2018	TA013	E2 Weathertightness	Hamilton
21 - 23 March 2018	TA024	Investigative Training	Southland Region
26 - 27 March 2018	TA014	B2 Durability	Palmerston North
26 - 29 March 2018	TA008	NZS 3604 Timber Framed Buildings	Waikato Region

APRIL			
3 - 4 April 2018	TA012	H1 Energy Efficency	Canterbury Region
5 - 6 April 2018	TA006	Site Inspection	Hawkes Bay
5-6 April 2018	TA014	B2 Durability	Southland Region
16 April 2018	TA015 / TA016	Clause D1 Access Routes and Clause F1 Saftey of Users	Auckland
23-24 April 2018	TA017	Services and Facilities	Waikato Region

MAY			
9 - 11 May 2018	TA024	Investigative Training	Auckland
7 - 10 May 2018	TA008	NZS 3604 Timber Framed Buildings	Southland Region
21 May - 1 June 2018	North Island Diploma Block Course	Combination of Essential Courses	Hawkes Bay
21 - 22 May 2018	TA013	E2 Weathertightness	Canterbury Region
23 - 25 May 2018	TA022	BWoF and Specified Systems	Canterbury Region

JUNE			
6 - 8 June 2018	TA020	Fire Documents	Wellington
11 - 12 June 2018	TA013	E2 Weathertightness	Auckland
11 - 15 June 2018	TA019	Plumbing and Drainage	Southern Region
21 - 22 June 2018	TA012	H1 Energy Efficency	Waikato Region
25 - 26 June 2018	TA017	Services and Facilities	Canterbury Region
25 - 28 June 2018	TA008	NZS 3604 Timber Framed Buildings	Hawkes Bay

Building Officials Institute of NZ

Please be aware that for various reasons course dates and locations are not final and subject to change, to view the most current information, please visit our website: www.trainingacademy.org.nz

The 2018 BOINZ Training Academy Calendar differs from previous years due to the changes to the qualifications Building Surveyors can achieve. You will note the inclusion of North and South Island "Diploma Block Courses", held in both March and June. These 2 courses will provide those enrolled in the New Zealand Diploma in Building Surveying (Level 6) the opportunity to complete the required Face-to-Face learning in one 2-week session. More information will be provided to those enrolled in the in-employment/cadetship study option in 2018.

Further updates about the 2018 Training Academy Calendar will be released via our monthly Training Academy Updates as it becomes available. If you would like to receive the Training Academy Update, please email training@boinz.org.nz

2018 BOINZ TRAINING ACADEMY CALENDAR

BOINZ Training Academy Courses

- TA001 Communications
- TA002 Building Controls
- TA003 Ethics
- TA004 Accreditation
- TA005 Plan Processing
- TA006 Site Inspection
- TA007 Advanved Plan Processing
- TA008 NZS3604 Timber Framed Buildings
- TA009 NZ4229 Concrete Masonary Buildings
- TA010 Light Steel Framing
- TA012 H1 Energy Effeciency
- TA013 E2 Weathertightness
- TA014 B2 Durability
- TA015 D1 Access Routes
- TA016 Safety of Users
- TA017 Services and Facilities
- TA019 Plumbing and Drainage Compliance
- TA020 Fire Documents
- TA022 BWoF and Speaified Systems
- TA023 Construction Materials
- TA024 Investigative Training

Building Officials Institute of NZ

Why Train with BOINZ...?

As a non-profit charity, BOINZ proudly supports the building surveying profession. When you support the Institute, you support yourself, your fellow members and the profession.

"BOINZ is a very professional organisation and its training courses reflect this, I am proud to be associated with this organisation." - John Blanken

Our suite of 20 courses, not only provide relevant technical knowledge, delivered by industry experts, but also underpin four of New Zealand's Building Surveying qualifications. Covering everything from; Construction Materials (new to 2018) to the specifics of NZS 3604, there is something for everyone. Contact us today to find a training solution to meet your personal requirements.

Attendees of TA017 Services and Facilities - Queenstown - 8 - 9 November

The New Zealand Diploma in Building Surveying (level 6)

The NZ Diploma in Building Surveying (Level 6) is the new technical qualification suitable for those practicing in building surveying. It provides a good understanding of regulatory requirements for establishing means of compliance with the NZ Building Code. This qualification will be offered in two distinct pathways:

Full-time study; this option is already available through Future Skills and enrolment is available for the next intake for early 2018.

In-employment / cadetship study; this option is currently being finalised for enrolment in early 2018. However to register for this pathway you must be employed by and working within a BCA (or equivalent) environment as a large part of the learning and assessment will be based on 'on-job' duties and tasks.

The BOINZ Training Academy is happy to discuss training requirements with any size organisation, if you have 5 staff or 50, we can look to find a soloution that works for everyone.

Phone: 04 473 6003 Email: training@boinz.org.nz website: www.trainingacademy.org.nz

PrefabNZ Top 5

1. HANDBOOK FOR THE DESIGN OF MODULAR STRUCTURES, MONASH UNIVERSITY

PrefabNZ is excited to offer Members the new Handbook for the Design of Modular Structures from Monash University.

It is the first resource of its kind for engineers and designers. Driven by the Modular Construction Codes Board, the handbook fills knowledge gaps and brings together, in one place, the collective wisdom and expertise of the industry in a range of areas relating to modular construction, prefabrication and offsite manufacture.
www.prefabnz.com/resources

2. KIWIBUILD SIGNALS THAT PREFABRICATION TECHNOLOGY IS ABOUT TO TAKE OFF!

The new Government's ambitious $2billion plan for 100,000 state built homes over ten years has invigorated New Zealand offsite manufacturers small and large, who anticipate contributing to meet the demand.
http://www.labour.org.nz/kiwibuild • https://www.nzgbc.org.nz/

3.

PrefabNZ's #CoLab2018 conference is approaching. It is THE fun and thought-provoking industry event of the year, bringing you to the heart of innovative construction. Wed 7 - Fri 9 March in Auckland.
CoLab sold out quickly in 2017, so mark your diary and talk to your team today about coming today! BOINZ Members are invited at 10% discount. Use code COLAB1810off
Book here
www.prefabnz.com/Events/CoLab2018

4. FIRST LIGHT STUDIO AND GENIUS HOMES NEW LINE OF PRE-CONSENTED, BEAUTIFUL ADAPTABLE HOMES

Genius Homes and First Light Studio have joined talents to create an exciting new range of prefabricated homes which offer: Flexible & smart layouts, sustainable materials, delivery in 5 months, starting from $350,000 and pre-consented.

www. geniusfirstlight.co.nz

5. CLUSTER EVENTS 2018

PrefabNZ is delighted to welcome Members of BOINZ to join us at Cluster events in 2018. A gathering for green built environment professionals at the heart of innovation, to meet, makes friends and collaborators. See the full list of events at:

www.prefabnz.com/Events

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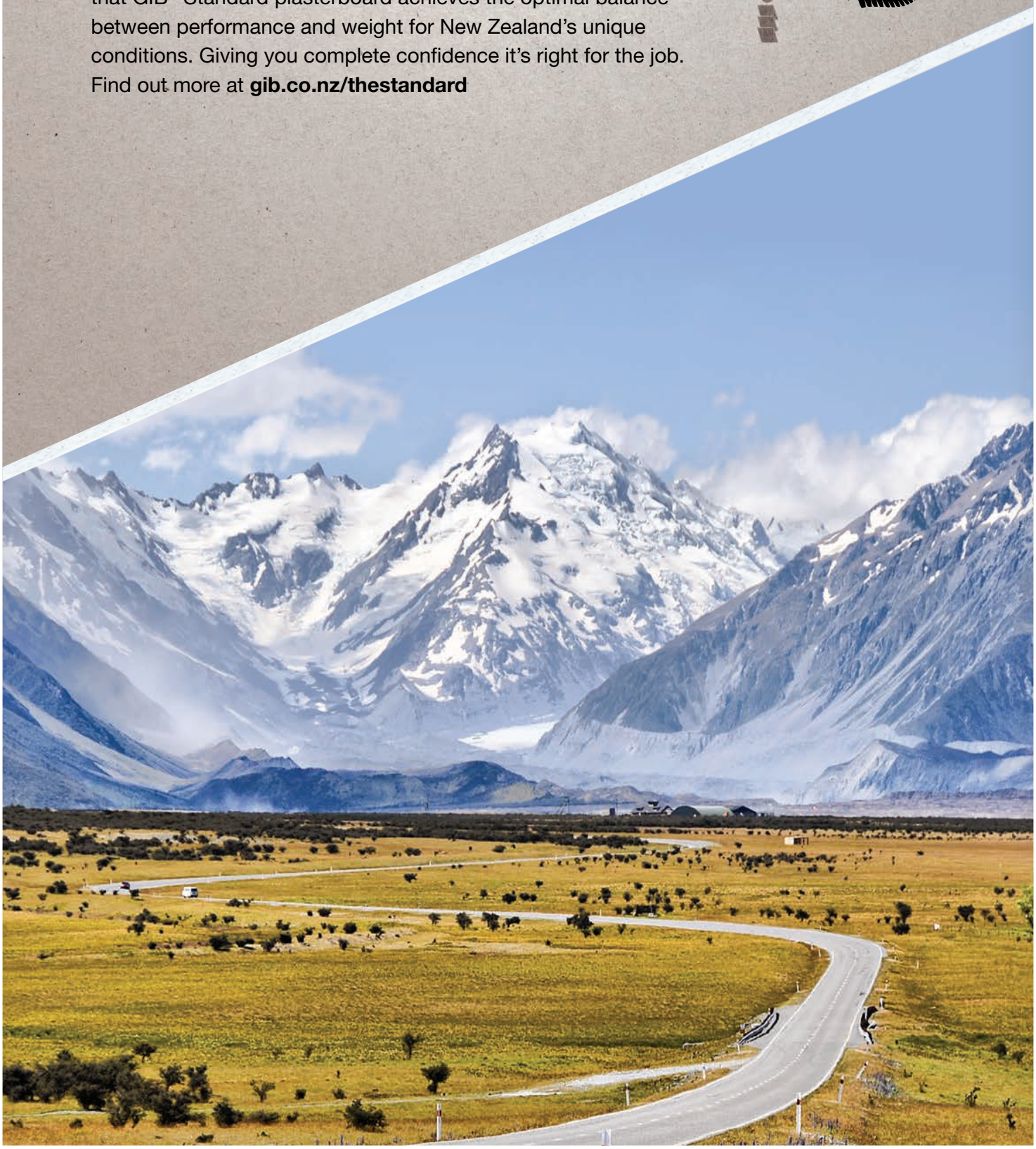


MBIE

John Gardiner

After 13 years as the first Building Determinations Manager, John Gardiner recently left the role to enter the private sector. But his mark on the industry is clear. MBIE's Building Determinations team has come a long way since the Building Act 2004 updated the industry scene amid the leaky building crisis, and continues to adapt to the unique challenges facing it today.
When John Gardiner took on the newly created role of Determinations Manager under the former Building Industry Authority, he and his team were processing about 12 determinations each year.
But with greater awareness of the function, the growing leaky building crisis and new Act requirements, determination applications exploded over the next 7 years, with the team dealing with nearly 150 determinations a year on average, peaking at 175 determinations in 2005.

With such demands, and as a strong advocate of the performance-based Building Code, John continually updated the determination's process to improve visibility and confidence with the system.

During his 13-year tenure, John issued about 1400 determinations, of which only 2 were successfully appealed.

Along with his determinations role, John played a lead role in a number of other significant work streams including multi-use approvals, the product approval regime, work on off-site construction, and the recent changes to the Earthquake Prone Building regime. The role required John to have a detailed knowledge of the building industry along with a growing understanding of related legislation, regulation and compliance.

Although he left MBIE this year, John set the wheels in motion for the Determinations team, which now considers, investigates and issues about 90 determinations a year and continues to move with the times and changes within the sector.

During John's time as Determinations Manager, about 50% of all determinations were legacy-based, for building work done under the Building Act 1991, due to the leaky homes era. Now, about 80% of determinations are for building work done under the 2004 Act. The team is now seeing applications on a broader range of issues, including fire safety, earthquake prone buildings, offshore-constructed modular house components, change of use related to residential accommodation and alternative building solutions.

In a recent change, the team was strategically moved into MBIE's Market Services branch in September - bringing it together with the Ministry's other operational functions of the building system, whilst allowing independence from MBIE's teams that set building regulations.

Katie Gordon

Heading the team now is Katie Gordon, whose regulatory, compliance and policy background puts her in a good position to lead the team in its next phase.
"The industry, regulatory settings and 'hot topics' are currently changing, and the Determination team plays an important role in testing new practices or legislation such as earthquake prone buildings, swimming pool safety and fire safety compliance," says Katie.

"Along with adapting to this diversity, the approach our team is taking is to assure the stability and robustness of the processes, John has been largely responsible for initiating.

"As the building landscape has become more complex it's as important as ever that there is a good mix of technical and legal knowledge in the team, as it applies its work to the performance-based Building Code.

"This involves a growing knowledge of regulatory environments and the interpretation of the Act, especially as it applies to local authorities and their changing obligations. With this we'll do what we can to achieve the fairest determination outcomes," says Katie.

Constitution Review

In May this year the Board agreed the Institute's current Constitution was not fit for purpose. This has been the position of previous Boards since 2011, but due to other pressing priorities and a review of the Incorporated Societies Act it was felt a review should wait till a later time.

At the May Board meeting it was concluded it was sensible to no longer delay this review on the basis proposed changes to the Incorporated Societies Act were largely known.

The Board established a specific Committee to review the Institute's Constitution and nominated members to the Committee with a further co-option of others if required.

The key reference areas for this Committee to work on are:

- Breakdown of current flaws and inefficiencies
- Identification of non-essential points
- Future proofing the document
- Identifying "pain points" that may require in-depth member consultation
- A legal review of the draft
- A process of membership transparency and consultation
- Approval at an SGM or AGM

The Constitution Review Committee members are, President Kerry Walsh, Directors Peter Laurenson and Cory Lang, Past President Phil Saunders, Chief Executive Nick Hill and Trevor Deed, a partner at Deloitte. The Committee has held two meetings, in September and November, with a third meeting scheduled in February. Members will be kept informed of progress via Board updates at Branch meetings and via a formal consultation process (format yet to be determined). Any enquiries can be addressed to the Chief Executive Nick Hill at nick.hill@boinz.org.nz

IPENZ transforms into Engineering New Zealand

From 1 October, IPENZ becomes Engineering New Zealand and launches a new membership structure.
Engineering New Zealand Chief Executive Susan Freeman-Greene says the engineering professional body's new name explains much more clearly "who we are and what we stand for".

Engineering New Zealand has also launched a new Membership Pathway, which creates a professional home for engineers from all disciplines at all stages of their careers. "We want to encourage senior managers, academics, engineering geologists, technicians and technologists to join, as well as engineering professionals from the rapidly growing fields like mechatronics and software.

With the new name comes a new logo: a stylised butterfly. Ms Freeman-Greene says the butterfly is a powerful example of innovation, change and brilliance. "It also represents transformation, which is the heart of what engineers do to make a positive difference to people's lives. The butterfly also suggests biomimicry – that uncanny ability to engineer something that reflects the best of nature."

engineering new zealand
Institute of Engineering Professionals

CHARTERED MEMBER AND CPENG

Our new Chartered Member (CMEngNZ) class recognises engineers who've reached an internationally recognised level of experience and competence, through an assessment. It's a good option for engineers working in fields that don't require regulatory sign off, where clients don't see value in CPEng registration. New Chartered Members will be assessed using the same internationally benchmarked standard as CPEng but won't be required to demonstrate knowledge and application of New Zealand-specific good practice. Chartered Member replaces our current Professional Member class (MIPENZ) and provides assurance of professionalism, ethics and a commitment to ongoing professional development.

Nothing is changing in relation to CPEng, which remains separate from Engineering New Zealand membership and is a registration under the CPEng Act 2002. We will continue to promote CPEng to engineers who need to sign off consents or certify work under a New Zealand regulatory regime. In contrast, we will be promoting Chartered Member to engineers who do not currently have a requirement to be CPEng, including engineers in less design-focused or technical roles (for example, engineering project management and asset management) and engineers working outside the building and construction sector.

OUR REGISTERS ARE CHANGING

As part of the changes, we are also transferring professional engineering geologists (PEngGeol) from a separate register to a category of Chartered Member – CMEngNZ (PEngGeol). There has been no change to the competence standard that engineering geologists are assessed against. Given the specialist, safety-critical nature of this membership category, these members will be periodically re-assessed.

Categories of Chartered Member also replace previous classes and registers for engineering technologists and technicians:

CATEGORY	CURRENT MEMBERSHIP CLASS/REGISTER	FROM 1 OCTOBER
Engineering Technologist	Technical Member (TIPENZ) Engineering Technology Practitioner (ETPract)	CMEngNZ (Eng.Technologist)
Engineering Technician	Associate Member Certified Engineering Technician (CertETn)	CMEngNZ (Eng.Technician)

RAISING THE BAR

As part of our commitment to raising standards of ethics and professionalism, from 1 October all members will be required to commit every year to the Code of Ethical Conduct and continuing professional development. This sets all members apart from engineers who are not members of Engineering New Zealand.

Read more about the new Membership Pathway for engineers at

www.engineeringnz.org
or contact Engineering NZ if you'd like to discuss these changes further

hello@engineeringnz.org

CONNECTION
RECOGNITION
CREDIBILITY
INFLUENCE

Spotlight on a Member

Name: Jack Lyons
Official Job Title: BRANZ Manager Advisory Services, Building Controls and Facilities
Region: Wellington

Jack Lyons was the 2016 recipient of the BOINZ Honorary Member Award at our Annual Conference in Christchurch. Jack began his career in 1969 undertaking formal qualifications in Carpentry. Jack was awarded the Norward Award as "Best Carpenter of the Year." at a time when there were hundreds qualifying annually. Jack went on to win a Building Bursary which took him to England to study and work. When Jack returned to New Zeeland he went to University where he studied valuation and later studied Arbitration.

Jack is a keen sailor, fisherman, boat and house builder. He has been a member of the Institute since the merging of the New Zealand Institute of Clerk of Works with BOINZ in 2002. He is well known to most of you as an employee of one of New Zealand's leading building research organizations, and is described by Wellington Branch members, as a very active and supportive organiser and "super" attendee of branch meetings. In fact, he has sometimes been portrayed as the "CONSTANT" in the Branch.

Jack Lyons announced last month that he was retiring in January, 2018 and will be departing shortly after to go sailing around the Pacific Islands for a period.

What was your first full-time job?

It was at the Ministry of Works as an Apprentice Carpenter Joiner. My dad influenced me, I was only 15 and he said, "Go and get a trade". It wasn't something that I thought I'd see myself in, but I studied the whole way through and my father could see that I wanted to take it a bit further. Once I finished my apprenticeship and my advanced trade certificate (as they used to call it) I then went onto do my New Zealand Certificate in Building and then went on to do Arbitration and Mediation studies. I ended up studying for 15 years in total.

What do you think has changed about the industry since you first started working in it?

It has changed quite dramatically. There is a much higher emphasis on health and safety which is a good thing. Detailed Contracts have now become the norm. Due to weather-tightness issues general public awareness of regulation has heightened. Consenting processes have also become more stringent and litigation has become common. When I was young we had 'Clerk of Works', (of which I was one) who were onsite and oversaw the quality and standard of the build. Over the years this role has disappeared.

What roles did you previously have?

Through my working career I have had many interesting roles, for example prior to BRANZ I worked at Wellington City Council where I had an eclectic range of roles. For instance, I looked after 'Special Projects' some of which were the Bond Store (Maritime Museum) and Wellington Art Gallery refurbishment. Greta point sale, Asset Management Plans for commercial properties, recreation centres, Civic Centre etc. I was also Team Leader Asset Development which included advising Council of property portfolio matters. Again a range of activities such as roadings, stoppings, easements, leasing, rental reviews and renewals and long term Asset Management Plans. I was also quite involved in legislative compliance for example, the Building Act, Resource Management Act, Local Government Act, Public Works Acts along with other Acts. Prior to the Council my roles included Director of Property Management for New Zealand Defence Force (Army), Operations Manager – Capital Discovery Place, Projects and Administration Manager Athfield Architects - I will always have fond memories of Ath as a talented, creative generous man – it was a great place to work and there was a fantastic team spirit that I will never forget. I also worked as a Project Manager for the Bank of New Zealand and a Project Manager for Ernie Joyce and Associates managing large commercial projects.

What is the most interesting part of your job?

Major Projects; and working with contractors and consultants. Historically, I really enjoyed working with the BRANZ Accredited Advisors. In the early stages, we had 34 around the country. Working with them was great as they were closely connected to the industry and we were kept abreast of industry issues and concerns.

What do you consider to be the biggest challenge your role?

There is no real challenge, what I think is important however, is getting on with people. Building relationships is important to not only getting the work done and bringing a project to fruition along with ensuring everyone enjoys what they are doing as the team achieves a satisfactory outcome.

In terms of an industry challenge, one that springs to mind is asbestos in buildings. It has been a challenge for many years and I see it continuing for many more as older buildings are renovated

What do you think is different about being in Wellington versus other regions?

It would definitely be the connection with the Government regulatory people and I have been privileged enough to be quite involved in the Building Controls

and the evolution in standards.

What do you see as the future of Building Control?

The industry has changed over a number of years and I see the building industry continuing to change and evolve as new products come on the market, as regulation keeps pace with not only new products but methods of building.
The demand for houses will increase as the population grows, the evolution of technology within the building industry will mean changes across a range of areas. Additionally, as we move into online processes, electronic consenting and prefab housing we will see the pace of building dramatically increase. Training will continue to be an important aspect but will become more just-in-time to keep pace with the continuous change and potentially increased range imported products. This will probably mean increased specialisation within the industry.

I also think that the results of natural disasters, has created a need for more knowledge ranging from structural engineering aspects to building products and their application, strength and life expectancy.

Jack's pride & joy

Spotlight On a Member - Could You Be Next?

If you are interested in talking to us for future issues or think you know someone who should be in the spotlight, is doing great work, please email **Sarah Wood:** marketing@boinz.org.nz

WORKSAFE

HSWA

FACT SHEET

October 2017

Asbestos and your home

Have you considered asbestos when planning work in your home? Houses built, or that had work done, between 1950 and 2000 are quite likely to contain asbestos.

When you are planning work

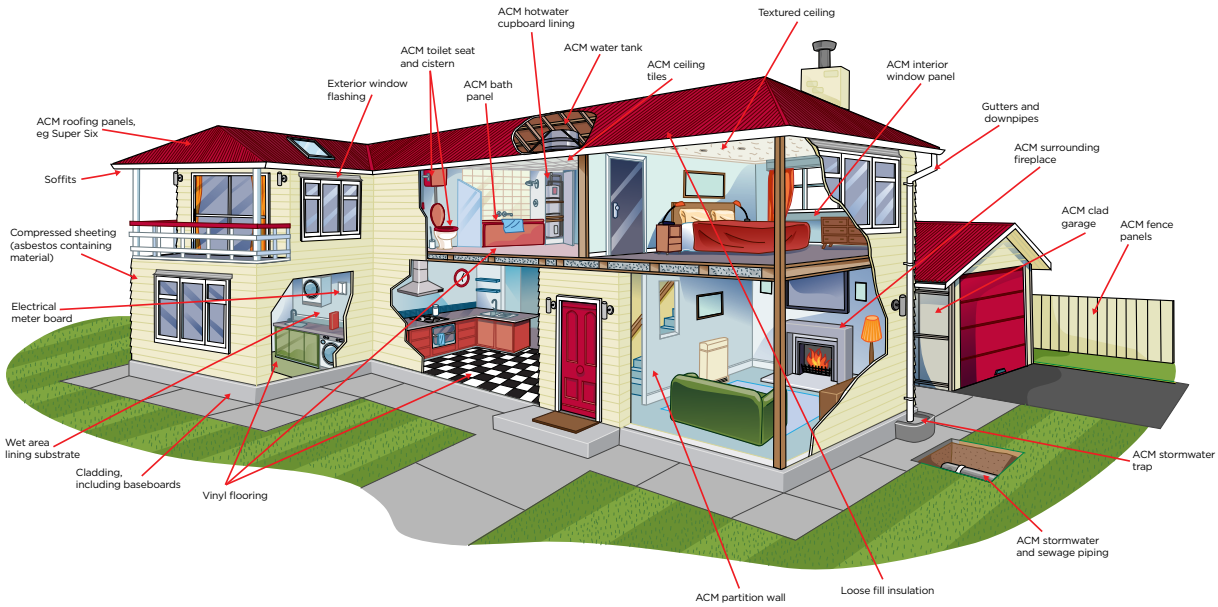
If you are doing work that requires planning permission, there's a good chance the works will require a demolition or refurbishment survey to search for asbestos.

Your contractor has a legislated requirement to ensure asbestos is identified and removed before any work that may disturb the asbestos begins in your home.

This is to protect you and your family.

Where does asbestos hide?

Asbestos-containing products can be found in lots of places, as the picture below shows. You might find it in vinyl flooring, interior and exterior wall cladding and soffits, fences, texture coatings, fireplaces, stoves, hot water cupboards, electrical switchboards, roofs, guttering and downpipes. The list goes on.



Asbestos, what's the risk?

Have you got enough knowledge to spot asbestos on site, and are you equipped to stay safe if you do find it in the course of your work? Regulations introduced in April 2016* require that you are appropriately trained to stay safe around asbestos if you are likely to be exposed to it.

As building inspectors, you are still very likely to come across asbestos as it was so widely used in New Zealand construction. Buildings, dwellings and structures that were built or refurbished from the 1950s through to as late as the 90s could potentially contain asbestos.

The vast majority of the housing stock in New Zealand is older. Therefore, the risk that you'll be exposed to asbestos in the course of your work is high.

Today, asbestos is commonly found in soffits, bathrooms and kitchens, but may be hiding in much more obscure places, such as window putty, or in decramastic roof tiling – which could be in a poor state due to its age.

The new legislation was introduced to reduce worker exposure to airborne asbestos as each year, over 170 people die of asbestos-related diseases. Sadly, it usually takes ten to 40 years for workers that were exposed to airborne asbestos fibres to present with any symptoms.

UNSEEN DANGER

Asbestos that's in a good state and that is non-friable is relatively safe, provided it is not disturbed. It becomes a problem when the fibres are airborne - often because it was unknowingly disturbed.
As with silica dust, it is the microscopic fibres that pose the greatest risk as they easily settle deep into the lungs. Once asbestos fibres lodge in the lung, that's where they stay, as our bodies are not able to get rid of the fibres.

The risk of developing illness related to asbestos exposure goes up the more often you are exposed to the fibres, which is why the legislation places a duty on PCBUs to ensure workers are suitably trained to stay safe if they are involved in asbestos-related work. As building inspectors, you are likely to be exposed to asbestos and should be suitably trained.

The training doesn't have to be onerous and can be in the form of asbestos awareness training, as it is designed to equip you with the skills to identify and safely handle asbestos. Courses are readily available across the country and usually take a few hours. They should be eligible for evidence of continued professional development. Just make sure to check that the course you choose provides enough detail for your circumstances.
We understand that BOINZ may be looking to help develop training that is tailored to your needs specifically.

INSPECTING BUILDING WORK

One key section of the asbestos regulations are the controls that have been placed on demolition and refurbishment work – as long as the dwelling, structure or building was built or modified before 1 January 2000.

If a PCBU is undertaking work on a structure that fits within the timeframe, there is a requirement that the PCBU establish the presence of any asbestos and make sure it is removed (by a licenced removal company) before the demolition or refurbishment occurs.

The regulations don't define what refurbishment is, so view our technical bulletin - Asbestos: Refurbishment versus maintenance (on the alerts section of our site) - ouytlines the difference between minor maintenance and refurbishment. In a nutshell, it comes down to the intent, are you're maintaining a structure or are you improving it? For example, replacing a window frame with a like for like would be considered maintenance. However, if you are expanding the window to put in a new much larger frame, that would be refurbishment. Another example would be in a bathroom where the entire floor was being pulled up and replaced – this would usually be refurbishment.

HELPING BUILDING AND PLANNING DEPARTMENTS

In the home, we have taken the broad view that internal work that requires planning permission has the potential to trigger the requirements contained in the asbestos regulations.

To help councils educate their customers on what they need to know we've produced a new fact sheet that quickly outlines the requirements under the asbestos regulations. The fact sheet should hopefully align with the advice that their tradies are giving them.

** Health and Safety (Asbestos) Regulations 2016*

BOINZ + EBOSS Product Compliance Roadshow: an all-round success

What's the Point?

The event was specifically hosted for Building Surveyors with our suppliers briefed to focus on compliance of products and systems from both a consenting and site inspection perspective. There was 7 to 8 suppliers on hand at each roadshow event venue; each of them making key technical personnel available to attendees.

How it Works

Suppliers share key components and critical aspects of their products in ensuring Building Code compliant design and construction outcomes, but also provide definitive answers to questions from attendees and lead meaningful discussions to facilitate better product and system awareness.
Following a brief introduction, attendees at each event are split into groups of 4-6, and then have 15 minutes with each supplier in a "speed dating" type rotation format, before the event concludes with a wrap-up from EBOSS and some time for questions and answers. This condensed workshop format focuses the suppliers' presentations to key points, while allowing attendees to get insight into, and a technical understanding of, 7 to 8 suppliers' products and systems in a half day format.

Future of Roadshows

While some of the planned BOINZ + EBOSS roadshow locations were postponed or cancelled this year, the ones that did go ahead are a story of all-round success. Attendees and suppliers alike praised the concept and successful execution. The Institute will look to make these roadshow events a permanent feature of its Training Academy Calendar. Those who did attend certainly saw the value in this low cost and time efficient format, and as a result we hope more of you will join us next year to ensure all of the planned locations will provide the same success we've seen at events run this year.

BOINZ 2018 Annual General Meeting Notice

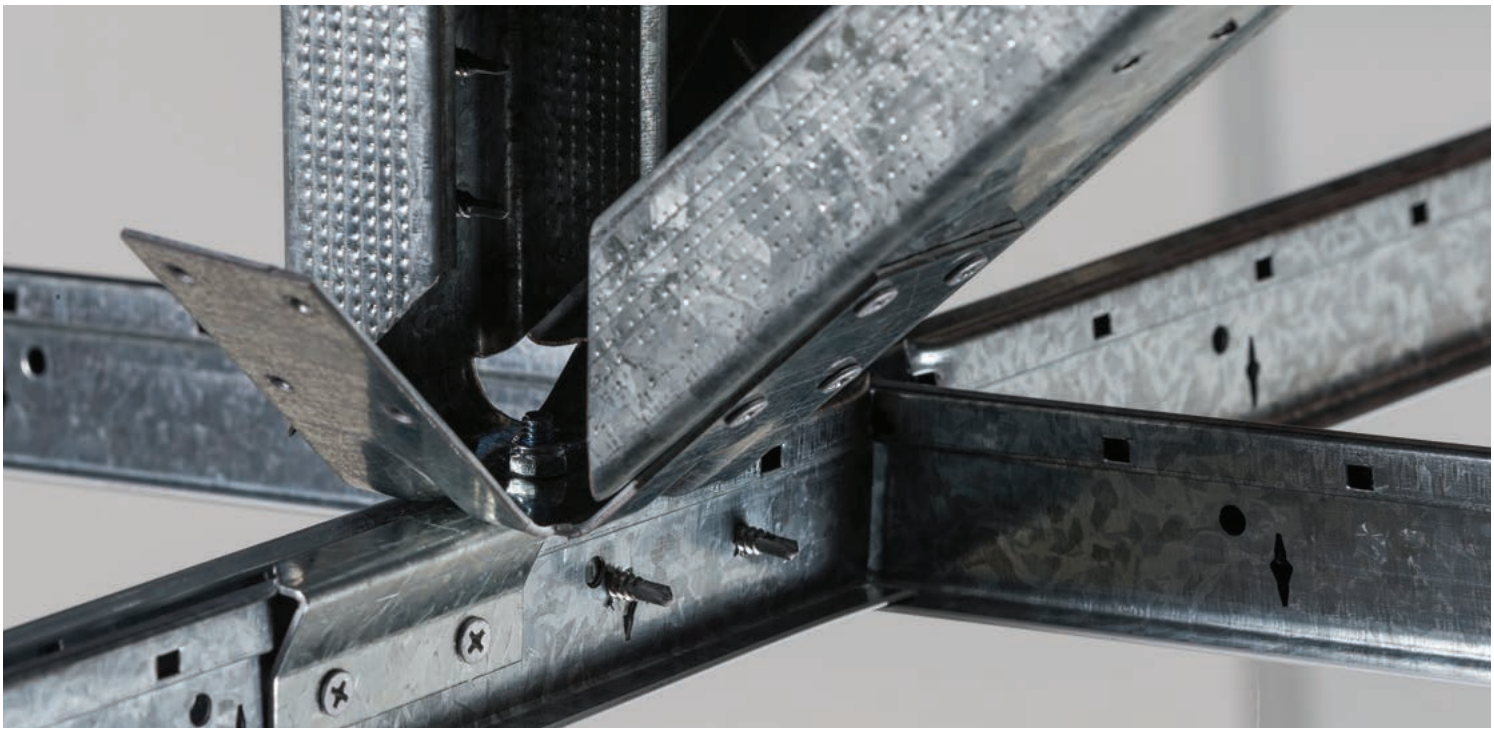
The Institute's 2018 Annual General Meeting will be held at The Dunedin Centre in the Main Plenary on Monday 14th May 2018 commencing at 3:45pm.

Access for financial voting members to the 2018 AGM will be by identification via your current Membership Card, proving current membership status.

AGM Timelines

Notices of Motion to the Chief Executive to be received by **26th February 2018**

Notices of Meeting, agenda and any notices of motion to members will be conveyed to members by 3rd April 2018.



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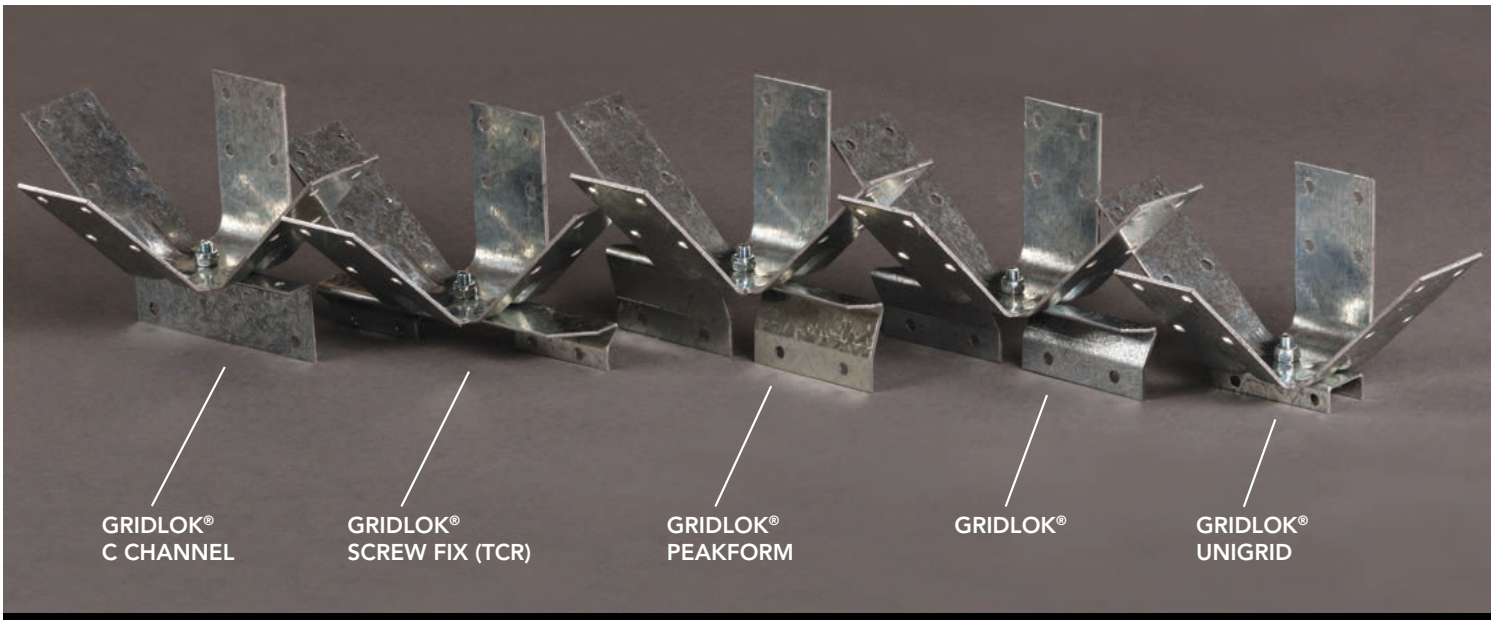

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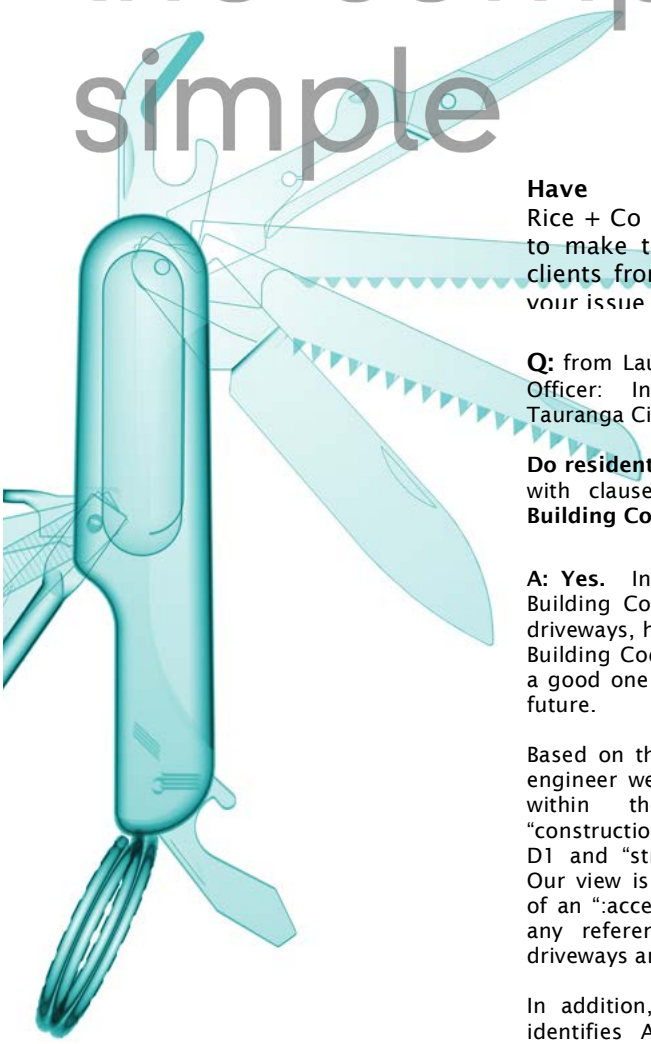


Helen Rice | Partner

Have a legal question that needs answering? Rice + Co Lawyers is here to help. For 25 years we have worked with councils to make the complex simple. We answer queries from our local authority clients from the far north to the deep south. Chances are we've dealt with your issue before.

Q: from Laurie Hubbard, Senior Building Officer: Inspections/Code Compliance Tauranga City Council

Do residential driveways need to comply with clause D1 of the New Zealand Building Code?

A: Yes. In our view clause D1 of the Building Code does apply to residential driveways, however a lack of clarity in the Building Code suggests that this issue is a good one to be determined by MBIE in future.

Based on the advice of an expert traffic engineer we consider that driveways fall within the natural meaning of "construction edge" referred to in clause D1 and "structure" in the Building Act. Our view is that driveways do form part of an ":access route". We have not seen any references that indicate domestic driveways are exempt from this.

In addition, section 10.1 in clause D1 identifies AS/NZS 2890 Part 1 as an acceptable solution for car parking areas and circulation routes (i.e. driveways). Part 2.6 in the standard specifically covers design of domestic driveways. The Building Code therefore appears to attempt to cover residential development, including vehicle areas at such development.

The confusion about whether clause D1 applies in this situation may arise from the similarity of the terms "access route" and "accessible route" referred to in the clause.

Q: from Heath Cotter, Building Technical Manager, Hastings District Council

Can councils apply for a determination before carrying out a function under the Building Act (such as issuing a notice to fix, declining to grant a building consent or code compliance certificate)?

A: Yes councils can. Section 177(1)(b) of the Building Act enables a building consent authority to apply for a determination before exercising a power of decision such as to grant (or decline to grant) a building consent or code compliance certificate. A determination can also be sought before a council decides to issue a notice to fix because it considers on reasonable grounds that building work does not comply with the Act or Code.

Determinations are a great tool for councils to use when there is genuine uncertainty about whether building work complies with the Building Act. Before committing, the council can get its proposed decision "peer reviewed" by MBIE. There is an additional benefit in that pursuant to s 392(1)(b) of the Building Act no civil proceedings can be brought against a building consent authority for anything done or omitted to be done in good faith in reliance on a determination.

Please send your questions to helen@riceandco.nz.

Watch this space.

"Mind the gap" in clause B2 of the Building Code

Nathan Speir is a Senior Associate at Rice + Co Lawyers and specialises in providing compliance and enforcement strategies for local authorities

A great panel discussion on Producer Statements at the Senior BOINZ Forum in August 2017 stirred up an issue that building control officers around the country have been confronting for some time – design engineers refusing to certify compliance with clause B2 of the Building Code in PS1s.

The familiar story is this: a design engineer applies for a building consent on behalf of its client. As part of the package the engineer provides the council with a PS1 that covers compliance with clause B1 (structure). The council then requests a PS1 that covers clause B2 (durability) and is met with a response such as:

> *We refer to the council's request for a PS1/B2. This firm is not able to provide a PS1 as requested because there is no effective verification method for clause B2 contained in the New Zealand Building Code. However, this firm can confirm that:*
>
> *a. Concrete durability has been selected in accordance with NZS 3101:2006 Part 1 Section 3; and*
>
> *…*

The above response is a directive from IPENZ and ACENZ which, since July 2015, have made their position clear that engineers should not complete PS1s for clause B2. IPENZ and ACENZ's well-documented view is that no engineer or producer statement author can show blanket compliance with clause B2 when a range of materials have been specified in a design.

As an "interim solution", IPENZ and ACENZ have directed engineers to provide a supplementary letter to the council that summarises those materials specified in the design that they can show compliance with clause B2 for and why they are not able to show compliance for other materials.

But where does this leave councils? In order to grant a building consent, the council must be satisfied on reasonable grounds that all of the building work will comply with the building code, including clause B2. A building control officer doesn't have the luxury to exclude certain materials from its decision and therefore why should design engineers, the experts in the field, be able to play on a different wicket?

And what happens when things go wrong? Let's say the building work proves not to be durable and the council has issued a building consent. When a claim eventuates the design engineer will argue that it has no liability and it is the rate payer that will be left to pick up the pieces.

In our view the current state of clause B2 is unacceptable and we applaud those councils who are asking questions of the "interim solution". If there is no effective verification method for clause B2 then there is a "gap" in the Building Code that needs to be addressed. We are currently involved in a determination process that seeks answers to these fundamental questions.

In next month's edition of Straight Up we argue that limitation of liability clauses have no place in producer statements.

The Value to Councils of using a BOINZ Accredited Building Surveyor

With the Institute being the peak body for Building Surveying in New Zealand it should not be overlooked that many of our members work outside BCA environments.

The Institute's Accredited members obviously undertake pre-purchase property inspection but also capably carry out additional building surveying reports and many are registered with councils around the country providing various reports.

Accreditation is defined "as the act of granting credit or recognition, especially with respect to education and skill" and those members who have undertaken the Accredited Building Surveyors Programme have undergone rigorous training and report auditing to achieve their status.

To be accepted into the Accredited Building Surveyors (ABS) programme evidence of a relevant technical qualification such as Trade Certificate/National Certificate in Carpentry is required along with a CV defining industry experience. If already an LBP they maintain their status thereby ensuring they keep up to date with industry news and technical developments. Between all of our ABS members there are decades of experience within the New Zealand built environment, and this experience is available for Councils to use as a resource.

To be approved for accreditation, ABS members must pass a robust course programme and audit process, provide proof of professional Indemnity Insurance and undergo a police check and then once accredited annual auditing continues; including a report review for each level of accreditation gained. An updated police check, and proof of insurance are also required annually as are details of any legal action taken against their company over the previous 12 months. There is also a requirement to complete an annual CPD plan around a minimum of 20 points annually.

Councils who use the services of an Accredited member can do so with confidence, knowing the individual has passed and continues to maintain standards around the Institutes stringent assessment process, and have trust in knowing reports are consistent and to a high standard.

Contact details for BOINZ Accredited Building Surveyors can be found on the Institutes website, or you can call the National office on 04 473 6001

2018 MEMBERSHIP RENEWAL INVOICE *ERROR*

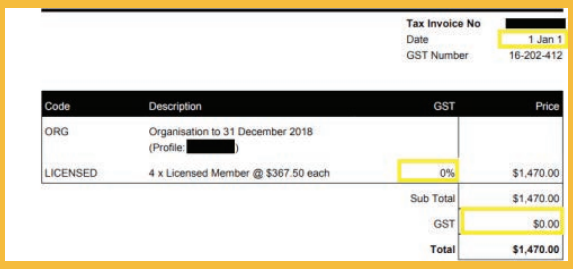
You will have received an invoice for the 2018 Membership Subscription from BOINZ on 20 November.

Unfortunately, the system error occurred with our automated billing system, that has omitted crucial information; the billing addresses and GST.

You now will have received a correct invoice issued to you to renew your membership for 2018.

Our sincere apologies for any inconvenience this has caused, should you have any queries please do not hesitate to contact us via office@boinz.org.nz

Building Officials Institute of NZ



Tax Invoice No [redacted]
Date 1 Jan 1
GST Number 16-202-412

Code	Description	GST	Price
ORG	Organisation to 31 December 2018 (Profile: [redacted])		
LICENSED	4 x Licensed Member @ $367.50 each	0%	$1,470.00
		Sub Total	$1,470.00
		GST	$0.00
		Total	$1,470.00

The invoice issued by BOINZ with the date "1 Jan 1" has been cancelled.

OUR NEW MEMBERSHIP APP.

Android:

iOS:

1. **Search your app store for 'BOINZ'**
2. **On the login page press 'first time using the app'**
3. **Enter your membership number, email address, and choose a password**
4. **Tap 'sign up' and you're ready to use the app**

Natural Building - A real option for the masses?

My invitation to attend the EBANZ conference (representing BOINZ) in Kaikoura on the weekend of the 14th October 2017 was a real eye opener. Imagine the sort of group you would expect to see at the Earth building conference, greenies / hippies maybe ...? , but no, more like architects, designers, engineers, builders. Fifty likeminded people that want to make a real difference in the way they live in and build houses, that are both good for the environment and for future generations. People that consider the energy that it takes to produce building materials, the pollution created to build houses and the future cost and environmental impact their house will have on the planet for the future. Definitely not about a minimum code approach that we see in 90% of our buildings today.

The EBANZ President Graeme North, has a desire to make natural building a part of mainstream building in New Zealand. This a very difficult target as the regulatory system is not set up to make the most of natural building techniques and so is not necessarily easily achievable for a mainstream builder. Standards unfortunately are either non-existent (as in straw bale houses) or out of date (as in the earth building standard). Also the Building code's acceptable solutions do not describe many natural building techniques. Because of this, mainstream builders avoid natural building designs. Added to the limitations above building officers have very little knowledge (or training) in natural building techniques and are consequently likely to be very risk adverse. The resulting, cost of natural building is therefore high (if you don't build it yourself!) because of its "alternativeness".

From left: Karry Walsh (BOINZ President), Graeme North (EBANZ President) and Verena Maeder

So to convert the average home owner in New Zealand to considering to natural building is near impossible until these areas are resolved. As building officers we only see naturally designed houses coming in for consent by very passionate home owners who will dedicate their life to designing and constructing it themselves. It will be their home for life, they want to do the right thing for the planet and want few construction and running costs. They are far from the average house owner.

Why not start considering a natural homes? For anyone that has been in one (normally straw bale and earth cob) the feeling is quite different to the average home. They are quieter, warmer, have a more homely feel and they often come come with lower heating costs due to their thermal mass and energy efficient properties. They don't have to look like an Earthship, and in my view the very best natural homes look very similar to a "normal home". Natural homes avoid wherever possible the key materials that most of us consider essential - cement and steel!

As building officials we need to get schooled up on natural building techniques to do our part towards improving easier pathways for natural build approvals. They are great for the environment and code compliant when well designed and constructed.

Book yourself in on the EBANZ conference in Auckland next year and be enlightened by the creativity!

Kerry Walsh
President BOINZ
EBANZ member.

The importance of air circulation for homes, schools and businesses

Darryl O'Brien

Darryl O'Brien is Head of Program, Undergraduate Built Environment Programs at CQ University where he lectures in Building Surveying and the Built Environment. Darryl is a current member of the Australian Institute of Building Surveying and is a past QLD/NT Vice president. Prior to joining CQU, Darryl was a Queensland based private certifier and planning consultant involved in a range of building and planning projects. Darryl holds bachelor degrees in both Building Surveying and Building Design and a Master's degree in Environmental Planning. Darryl is a recent PhD graduate, his doctoral research examined how to best optimise building codes in response to ongoing demographic change. Darryl's other research engagement includes ethics and conflict of interest; the identification and management of non-conforming building products; managing demographic change and environmental docility; and the history of building code development.

Adequate ventilation in buildings is essential for exchanging fresh and contaminated air to maintain a healthy indoor environment. In a natural state, the atmosphere contains approximately 78% nitrogen, 21% oxygen and 1% other gasses, of which 0.04% is CO2. Exhaled air contains approximately 16% oxygen and 4% CO2. Without sufficient air exchange CO2 levels can rise to unacceptable levels. Whilst age and activity influence individual CO2 generation, however the process of respiration means that without a replacement source of fresh air, air quality will become untenable.

Air circulation can be achieved by two broad means – natural or mechanical ventilation. Traditionally, natural ventilation (for example windows) has been used to provide the required level of ventilation. However, to be most effective doors and windows should be designed to allow for cross flow ventilation – that is to allow for the air to flow from opening to opening. Another form of natural ventilation used from at least the Roman era is known as the stack effect. Taking advantage of the buoyancy of hot air, buildings can be designed to allow the hot air to enter into the building and exit from a high point. This phenomenon is known as entrainment and is the similar sensation that you feel when sitting around a camp fire, with the air rushing past you toward the fire. The stack effect can be enhanced by allowing the incoming air to move across water, lowering the temperature and increasing humidity.

The other common option to provide air movement and condition the air to maintain thermal comfort is mechanical ventilation, usually air conditioning for cooling or heat pumps for space heating. Indeed, in a technological society such as New Zealand, it is estimated that people spend up to 90% of time in an air conditioned environment (such as dwellings, vehicles or workplaces). For example, a 2007 BRANZ study estimated that the proportion of New Zealand households utilising heat pumps for space heating rose from virtually nil in 1997 to around 120,000 in 2007. Although more recent figures are not available, as with other developed countries it can be assumed that the uptake of air conditioners and heat pumps to maintain thermal comfort will continue to increase.

This reliance on air conditioning and heat pumps to maintain thermal comfort means that it is critically important to ensure monitor air quality to maintain a healthy indoor environment. This may be particularly the case as we move to seal buildings to make them more energy efficient. This design outcome reflects a need to minimise the transfer of conditioned indoor and unconditioned outdoor air to maintain thermal comfort and reduce energy costs.

However, sealing buildings to reduce uncontrolled air transfer to reduced energy use/cost can potentially affect air quality. Poor air quality in buildings manifest in three broad areas. The first area where poor air quality was shown to have adverse impacts was respiratory disease (acute respiratory disease, pneumonia and influenza). The second area related to perceived air quality, where poor indoor air quality lead to complaints of stuffy air, odour and general dissatisfaction. The final area relates to reduced self-measured performance capabilities in CO2 rich environments. For example in a 2008 study examining self-measured academic performance, elevated CO2 concentrations were associated with a reduced Power of Attention of approximately 5%.

Other situations exist where air quality in buildings may be compromised by using air conditioners to maintain thermal comfort. In a study of residential units in Singapore, it was found that in accommodation units that utilised air conditioning systems with no fresh air intakes CO2 concentrations reached a maximum of 1600 ppm, as compared with CO2 levels of between 550 – 600 ppm where natural ventilation was provided. Similar findings were reported in a survey of high rise residential apartments in Hong Kong findings where CO2 levels of up to 1800 ppm were recorded. One of the health consequences of exposure to high CO2 levels is increased rates of fatigue. So although we need to maintain satisfactory thermal comfort to promote a healthy sleep environment (around 220C is good), poor ventilation strategies could unintentionally impact on sleep quality. It is important that air conditioning systems allow sufficient fresh make-up air to maintain acceptable air quality.

Thus, the continued reliance on mechanical ventilation, air conditioning and heat pumps to maintain thermal comfort may come at the expense of occupant health if buildings are not intelligently designed to allow the circulation of fresh make up air.

NZHHA
New Zealand Home Heating Association Inc

15 year Warranty or the Need for a Consent?

Mike Chilton

Part 1
Exempted building work

General

1 General repair, maintenance, and replacement

(1) The repair and maintenance of any component or assembly incorporated in or associated with a building, provided that comparable materials are used.

(2) Replacement of any component or assembly incorporated in or associated with a building, provided that—
- (a) a comparable component or assembly is used; and
- (b) the replacement is in the same position.

(3) However, subclauses (1) and (2) do not include the following building work:
- (a) complete or substantial replacement of a specified system; or
- (b) complete or substantial replacement of any component or assembly contributing to the building's structural behaviour or fire-safety properties; or
- (c) repair or replacement (other than maintenance) of any component or assembly that has failed to satisfy the provisions of the building code for durability, for example, through a failure to comply with the external moisture requirements of the building code; or
- (d) sanitary plumbing or drainlaying under the Plumbers, Gasfitters, and Drainlayers Act 2006.

Recently, the NZHHA was asked to advise on a case where a vehicle had crashed through a property and bumped the external chimney that contained an operational 20 year old insert wood burner. The chimney remained largely intact and the wood burner was pushed into the room by about 5mm. The building consent authority (BCA) inspector advised that
the NZHHA certified installer ought to carry out the repairs and give a 15 year warranty on the work.

The Building Act 2004 and the Building Regulations 1992

There is no specific law requiring installers give 15 year warranties on their work. The NZHHA's opinion was that the BCA's focus ought to have been limited to whether the work required a building consent. Only then can a BCA raise the issue of durability periods rather than impose warranty periods. However, whether repairs on wood burners requires a building consent is not always easy to determine as explained below.
Under Section 17 of the Building Act 2004, (the Act) all building work must comply with Schedule 1 of the Building Regulations 1992 (the Building Code) regardless of whether or not the work is subject to a consent. Under Section 41 of the Act, certain work does not require a building consent (Schedule 1 of the Act "Exempted Building Work").

Repairs and Maintenance

A building consent is not required where the work falls under repairs and maintenance in Schedule Much work carried out on wood burners and flues systems can easily be classified as repairs or maintenance such as replacing bricks and baffles or flue cleaning. Replacing flue sections could also be considered like for like replacements under Schedule 1(2). However, at what point would a BCA consider that the work carried out goes beyond mere repairs or maintenance? Are there limits to the degree of repairs done under Schedule 1(2) before a consent is required?

Like for Like v Substantial Replacement

Schedule 1(3)(b) states that where there is "complete or substantial replacement" of components affecting fire safety, then there is no exemption and therefore a building consent is required.
It is easy to confine flue cleaning and fire brick replacements to repairs and maintenance. However, in some cases the line is blurred of what some would consider like for like replacement, exempt under Schedule 1(2); compared to others thinking the same work is substantial and not exempt under Schedule 1(3). Just how many flue components constitute a "substantial" replacement is open to interpretation.
No one wants to be overburdened with consenting issues and we all prefer to get on with the job without building consent complications. Therefore, it is tempting to interpret the exemption clauses liberally in favour of expediency and cost.

Is "when in doubt -get a consent" the correct approach?

A BCA may be tempted to take a conservative approach and say that a consent ought to be obtained. However, the NZHHA would prefer BCAs to make an informed decision on a case by case basis.

The problem with taking a conservative approach is where the property is situated within a clean air zone and the appliance can no longer be installed due to local air quality regulations. Upon application of a consent, any local clean air requirements are triggered because the BCA has a duty to comply with Sections 15 and 43 of the Resource Management Act 1991. Therefore, under regional air quality by-laws, the application would require the installation of a new compliant low-emission or an even more expensive ultra low emission burners. (ULEB). For example, in Canterbury after 1 January 2019, consents will be granted only for the installation of ultra low emission burners. Thus imposing a requirement to get a consent for repair work could cost $7000 in appliance replacement costs.

If a consent is not required then the old wood burner can be repaired thus saving the homeowner many $1000s of dollars. NZHHA training is available to BCOs via the BOINZ training programme whereby the course material covered will allow BCOs to make informed decisions regarding the nature of the repair work required and the need for a consent.

Refitting a Compliant Wood burner

Another interesting point is what happens to the durability period of a 10 year old insert wood burner already clean air compliant? Under B2.3.1 the new durability period would commence from the newly issued code compliance certificate's date of issue. This would push the durability period to expire after 25 years of service. It is unlikely any BCA would accept such a long period of durability and therefore it would likely refuse a building consent to refit the wood burner.
However, there is a trend in the MBIE Determinations where it considers that BCAs have the power to grant a "modification" of Clause B2 so that the durability period commences from when the original works were substantially completed. This principle could also apply to a wood burner when it was first installed. Unfortunately, there is no MBIE determination specifically dealing with wood burners and the modification issue.
It would be reasonable to expect a BCA to allow a 10 year old free-standing wood burner to be refitted and still comply with B2 given the required durability period is only 5 years. This is particularly important for homeowners wishing to shift the fire due to house renovations but avoid the costs of replacement.

Conclusion

The powers of any BCA are limited to those under the Act. There is no law requiring installers to give 15 year warranties. There is no requirement for a building consent where the work consists of minor repairs. However, a consent is required where the work is substantial and that the works affects the building's fire-safety properties. In this case, if the wood burner and flue were inspected and found to be undamaged, it would be likely just a minor repair without the need for a consent.
The idea of "substantial" is subjective and open to interpretation. If asked, the BCA is likely to take a conservative approach and require a consent but it is hoped that more BCAs embrace NZHHA training to give them the confidence to take a pragmatic approach on a case by case basis.
If the wood burner is within a clean air shed, a new consent may trigger the regional clean air rules requiring the wood burner's replacement. Arbitrarily requiring homeowners to obtain consents may cause unnecessary costs in the order of thousands of dollars.
Refitting a partly-lifted clean air wood burner subject to a new consent, raises its own issues in terms of extended periods of durability. Such cases may be dealt by the modification process available to the BCAs.

As with many cases, there are grey areas but it is hoped that this article highlights some of the important points to consider. The NZHHA welcomes feedback on these and other issues the BCAs have on the interpreting the Building Code in the context of installing wood burners.
For technical queries and information please send your enquiry to info@homeheat.co.nz

Could the solution to New Zealand's quake-prone buildings already be on a shelf at Bunnings? *By Laura McQuillan*

Laura McQuillan

Auckland University researchers say beams of timber stuck onto the backs of unreinforced masonry façades could be a cheap and simple way to stop them collapsing in an earthquake. Laura McQuillan investigates.

Owners of nearly 140 buildings from Lower Hutt to Canterbury have been given until the end of March to secure unreinforced masonry façades and parapets that pose an "immediate danger" to passers-by. After that deadline, building owners who haven't done the work face non-compliance fines of up to $200,000.

But councils are saying that work to secure masonry is only underway on about a quarter of the buildings, and just one (in Wellington) has so far completed it.

With the clock ticking, Auckland University seismic engineering lecturer Dr Dmytro Dizhur is encouraging owners and engineers to consider wood to quake-safe their buildings.

How would wood work?

The idea for using wood to secure façades arose out of the Christchurch quake, where timber frames stayed standing while the masonry in front of them collapsed.

Dizhur thought: why not fasten the two together?

His solution is almost as simple as popping down to Bunnings for a load of timber strongbacks, then fastening them vertically along a brick wall at certain intervals, and to horizontal beams connected to the floor and ceiling.

How wood can be used to quake-safe buildings

"Masonry has very little tensile strength, so it's just sort of a stack of bricks on top of each other, and as soon as you push them sideways, they tend to just [fall] as a stack of bricks," he says.

"What the timber does, in the regular spacing, is just holds everything together, so you actually engage the weight… You're actually using the heavy aspect to your advantage."

Both the wood's thickness, and the size of the space between beams, need to be carefully calculated, and Dizhur presented those calculations to the Structural Engineers' Society conference on November 2. His team is currently in the process of manufacturing special screws to anchor the timber to masonry, with nothing on the market quite right for the job.

In Dizhur's tests, the timber and masonry combo "seems to have performed extremely well", withstanding three times as much ground acceleration as a wall without it.

"We took it up to as high as 1.3g, which, in a New Zealand context, is quite high," Dizhur says.

That's the same ground force acceleration measured at Ward in North Canterbury during the Kaikoura quake, though 3g was measured in Waiau during the same quake and 2.2g during the Christchurch quake.

Dizhur says there's no reason why the wood technique wouldn't work on a two or three-storey building on Wellington's Cuba Street, though some buildings – including those with parapets – will need additional retrofitting methods.

Glass and rubble covers the footpath on Wakefield street after the November 14 earthquake. Photo by Hagen Hopkins/getty images

"There will be cases where it's going to be a sole solution, but in other cases, it will be part of a package. It's not a magic bullet, but it addresses one of the biggest concerns and one of the most expensive concerns."

As for why no one's thought of using wood before, Dizhur points out they did – 3000 years ago.

"Ancient Greeks and ancient Romans already had ideas of combining timber and masonry, in a slightly different fashion, but the basic principles are the same. We're not actually technically inventing anything new, we're just rediscovering the old knowledge.

"People get on a tangent with over-complication and sophistication with all the technology that allows you to do that, but if you just step back and look at the principles, usually the answer is right in front of your nose."

Canada's magic concrete

While the Auckland team was screwing wood onto masonry, researchers at the University of British Columbia in Canada were mixing fibre with cement and spraying it onto concrete walls.

The new material, called eco-friendly ductile cementitious composite (EDCC) and nicknamed "quake-resistant concrete", can make a wall "bend" enough to withstand nearly twice the force of the magnitude-9.1 quake that hit Japan in 2011.

It's not the first fibre-reinforced concrete in existence: a similar New Zealand product, Flexus, was launched about seven years ago but discontinued in 2015.

But at just $10 (NZD $11.20) per square metre, EDCC is touted as the cheapest on the market – ideal for use in quake-prone developing countries.

Releasing an impressive video of an EDCC-coated wall surviving an earthquake

simulation, UBC said it "could save the lives of not only British Columbians but citizens throughout the world". Canada's so amped about the innovation that it's already been added to British Columbia's seismic retrofit program and will soon be used to upgrade schools in both Vancouver and India.

Researcher Salman Soleimani-Dashtaki said it's also perfect for Wellington's heritage buildings, saying it can be applied to just the rear of a wall, without altering the front. And he's "very confident" that, had the material been used in Christchurch prior to 2011, it could have prevented deaths from falling masonry.

"Maybe the buildings still needed the restoration after the earthquake, but the number of bricks, clay bricks, and debris that was flown away could have been prevented, could have been avoided by a factor of 10, I would say."
If further testing outside the lab proves it's as good as the researchers believe, they hope to have it on the market next year.
The idea of using EDCC in Wellington was run past property mogul Ian Cassels, who said he's "mad keen" to try it on his buildings, which include Island Bay's red-stickered and empty Erskine College, and others on Cuba Street.

"$10 a metre is a very, very low price for any type of coating, particularly if it's engineered-type coating, it's gotta have reasonable thickness and volume to it," the director of the Wellington Company says. "I think it's a fabulous idea but I just can't believe it'll work."

Plastering a wall with seismic-resistant concrete (UBC)

Neither can a Kiwi expert who attended a technical presentation by the Canadian researchers in Los Angeles.
"On the [UBC] video, it appears that people are getting earthquake-resistant concrete. There's nothing as such," says University of Canterbury engineering professor Stefano Pampanin.

"It's not one single technology or technique which is going to save the building from being earthquake-prone or not… It's just that this can become part of a toolkit of an engineer."

How wood can be used to quake-safe buildings

Pampanin was quick to add there were positives to the Canadians' research – but it wasn't the silver bullet it had been made out to be.

"New materials are being developed further and further. They are reaching a point where they're becoming cheaper – that's absolutely fundamental – and they're becoming more and more feasible to be applicable.

"The more we go, the more people will be able to use simple and cheaper, but very performant, materials and technology. That's the good news. But yes, it has been oversold."

Would either fly in New Zealand?
Neither the Ministry for Business, Innovation and Employment (MBIE) nor Wellington City Council wanted to endorse an innovation, saying it's up to owners to decide the right way to improve their building's performance.

If EDCC were to be used in New Zealand, its manufacturers would first have to prove it meets Building Code standards – so if it makes it to hardware store shelves, it'll be long past the March deadline.

But while most owners of Wellington's 96 must-fix buildings will use steel beams or strapping to secure their façades, wood could be used on some, the city's chief resilience officer Mike Mendonca says.
"There's a guy who owns a garage in one of the suburbs, and his is a pretty simple job where he just needs to remove the parapet, weather-tighten what he's done, and just get on with it… I wouldn't say it's quite as simple as go to Bunnings and get a bit of 4×2, but it's not too much more than that," Mendonca says.

"There are a bunch of those, but we're being very careful not to generalise because you simply can't do that on the building that's on the main corner outside the hospital, for example."
He's referring to the iconic Ashleigh Court Private Hotel, at the corner of Riddiford and Rintoul streets, a heritage building that "needs architectural services, professional builders, traffic management, that kind of thing".

But, adds Mendonca, "horses for courses – in some cases, yep, Auckland University's actually right."

So mark that down as a win for the wood team – though the real champs are those building owners who are putting in the effort and expense to secure their masonry, whichever way they choose to do it.

Your Industry Ministers.

Below are the ministers holding portfolios most relevant to BOINZ work in building and construction and other related issues.

Hon Phil Twyford	• Minister of Housing and Urban Development
Hon Jenny Salesa	• Minister Building & Construction • Associate Minister of Housing & Urban Development
Hon Dr Megan Woods	• Minister of Greater Christchurch Regeneration • Minister responsible for Earthquake Commission
Hon Nanaia Mahuta	• Minister of Local Government
Hon Iain Lees-Galloway	• Minister of Workplace Relations & Safety • Minister of Immigration • Minister of ACC
Hon Kris Faafoi	• Minister of Civil Defence • Associate Minister of Immigration

** - All of these people hold other portfolios and responsibilities and there are other MP's who hold associate roles.

Pushing the duty envelope

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By Frana Divich, Partner

Our attention was caught by the very interesting case of Body Corporate 212050 v CoveKinloch Auckland Limited (in liq) & Ors and we thought you might be interested too. As the sun sets on many building defects claims (because the ten year long stop period now often applies) lawyers are getting creative in the claims they bring against councils.

The judgment we saw concerned the Auckland Council (the council) applying to the court for documents that the owners did not want to disclose. The council succeeded in that the court ordered that the owners disclose all documents from the earlier proceeding and a settlement agreement.

For us the most interesting element of the judgment was the alleged duty of care. The court has not been asked yet to decide whether such a duty of care exists, but it agreed it was novel.

The background to this case is as interesting, as it is sad. We set it out for you before we talk a bit more about the duty.

BACKGROUND

In 2011 the owners brought a building defects claim against James Hardie NZ Ltd (JH) and Hawkins Construction North Island Ltd (Hawkins). They alleged that JH and Hawkins negligently constructed their apartments in Auckland.

The claim was quantified using tenders based on remedial designs prepared by Cove Kinloch Auckland Ltd (Cove Kinloch) and Chester Consultants Ltd (Chester), which were approved by Auckland Council when it issued a building consent for the remedial work.

On 5 August 2013 the 2011 claim was settled. The terms of the settlement are confidential. On 19 August 2013 the claim was discontinued.

In 2016 the owners issued proceedings against Cove Kinloch, Chester and the council. They alleged the remedial designs prepared by Cove Kinloch and Chester were defective so the remedial work could not be carried out in accordance with the Building Code, and the council breached its duty of care when it issued the building consent, as it did not have reasonable grounds to be satisfied the provisions of the Building Code would be met if the works were undertaken in accordance with the remedial design.

As a result of design defects, they say the remedial work could not be carried out in accordance with the consented remedial design. The remedial works started but were abandoned 18 months later. During the remedial work, amended designs and building consents were required, and remedial costs escalated significantly. The total projected costs to complete the remedial works escalated from $4.3m to $11.6m. Eventually the buildings were demolished.

The tenders that were relied on to quantify and settle the 2011 claim were grossly under-valued. The owners allege they have suffered losses as a result of the parties' negligence, including the loss of a chance to settle the 2011 claim for more money.

THE DUTY

The building owners are alleging a novel duty of care against the council. They say that had the council identified issues with the remediation plans when it processed the building consent application then they could have obtained a better settlement from JH and Hawkins.

The building owners are attempting to impose a duty on the council to protect the interests of owners trying to recover compensation from builders, by ensuring that the extent of repairs their experts had scoped and designed, were correct.

WHAT NEXT?

We intend to keep an eye on how this case develops and will report further if there are any other judgments. It does have the hallmarks of a case that could proceed to trial as the council has good arguments on each of the elements of negligence.

All cases are decided on their own facts but this case against the council does seem inherently difficult. Even if the novel duty is found to be owed: there will be great complexity in determining what should have happened. Was the council entitled to rely on the remedial experts? What would have happened had issues with the remedial building consent application been identified at consent stage? Would all the problems have been identified at that stage? What would the claimants have done? What would they have settled for? Would Hawkins and JH have paid more to settle? Would the case have settled at all?

These are all questions a trial judge may have to grapple with at some stage and are of great interest to all of us working in this area. If you have any questions about this case or would like a copy of the judgment please contact me at

frana.divich@heaneypartners.com

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Timber in Taller Buildings – Vancouver's Tallwood House vs Wellington's Bob Jones building

By Daniel Scheibmair

Daniel Scheibmair

BOINZ recently supported and encouraged its members to attend Timber Design Society (TDS) roadshow presentations focusing on timber in taller buildings and the increase of mid-rise and medium-density construction in NZ. BOINZ presented to attendees at each roadshow location and the main conference on the Education and Training initiatives the Institute has been working on over the years, and the more recent investment in the HR Division, both of which should help ease the current staff shortage.

Karla Fraser, a Senior Project Manager at Urban One Builders in Vancouver, was invited to New Zealand as keynote to also address the audience at each roadshow location as well as at the main 'Changing Perceptions of Engineered Timber' conference in Rotorua.
Karla worked on the recently completed Tallwood House at Brock Commons in Vancouver, which at 18-storeys is the tallest timber building in the world, housing students at the University of British Columbia. She said a fear of building

Karla Fraser

high-rises with wood had meant the idea had been slow to take off. There had been concerns about moisture levels in the wood as well as fire risk. Ms Fraser said a lot of

work went into the design and testing of the building and fears had been assuaged.

While she was not a 'timber convert' prior to the Tallwood House project, the building had highlighted to her the logic in using wood, particularly in countries with an abundance of timber like Canada and New Zealand. "There is definitely a benefit to be able to grow a product you are using to build." She said in the case of Tallwood House it was about 5 percent more expensive to build than a conventional concrete building, but concedes that this does not include construction time savings and other developer benefit factors which would certainly have made it the more cost effective of the two options.

She also added using mainly timber was environmentally friendly, and "at Tallwood we had a lot less waste than we have off regular projects we work on… the wood buildings, they make sense. They have a lot

more flex to them and the engineering expertise is available and can be done easily and I do believe these are smarter buildings. It also makes perfectly good sense to use your local industry to support your economy and the people living here."

In a NZ context, those sentiments are echoed by property magnate Sir Bob Jones, who appears has caught the timber bug too. Convinced of the speed, safety and environmental benefits of wood construction, he is channeling his vast commercial property knowledge and experience into plans for a 52m high 12-storey wood office building in central Wellington; to be completed in 2018.

Comprising a combination of LVL frames and CLT floors, at 1/5th the weight of concrete the structure will be light enough to sit on the foundations of the building it replaces.
"Laminated timber is far more earthquake-resilient and fire-resistant than steel or reinforced concrete, and more environmentally friendly", says Sir Bob.

The Featherson Street building will be higher than the current tallest timber office building in the world which is under construction in Brisbane – noting that many other tall timber buildings like Tallwood House at Brock Commons in Vancouver are not office or commercial spaces but used for accommodation or living purposes. Sir Bob says that when he broached the idea of using timber with architects and engineers there was great excitement. "They've been waiting for it to happen."

"New Zealand has a great strategic advantage with a plentiful supply of wood, but very few buildings are made this way here" he says. He predicts timber will be the principal material for high rises in the future and potentially there will be huge export markets for our NZ laminated or engineered wood overseas.

"There's no limit to how high you can go with it. It's really relevant to New Zealand, not only to stop importing steel and start processing our timber, but it's relevant for earthquake reasons. It'll be the most earthquake-safe building." Yet passers-by won't notice a thing; "It's a modern office building on a corner facing north. What we're talking about here are the key structural elements columns and the cross beams and we are going to put wooden floors on it." Say Sir Bob.

Daniel Scheibmair, the Institute's Technical and Education Manager, has been lucky enough to visit Tallwood House at Brock Commons which Karla Fraser was Senior Project Manager on, several times during its construction when visiting or stopping over in Vancouver for travel with his previous employer. He was impressed not only with the timber components forming the main structural skeleton, but also how timber, steel and concrete have been designed to work in unison utilising each materials' strengths. It's great to consider that NZ may soon have a similarly tall timber hybrid building, but arguably one better with it being a world first used for commercial occupancy.

While Vancouver is also a seismic region, given the locality of the Tallwood House project in its surrounds, and the different occupancy, also makes the Wellington project far more challenging. The seismic behaviour of Sir Bob Jones's building has already caught media attention, with reports of a Tuned Mass Damper system possibly being incorporated into the design. These systems are not unique to timber construction, and indeed have been used relatively widely already in concrete and steel buildings where movement from wind or earthquake is to be restrained. To learn more about what these systems are, examples of where they've been used, and how they work, keep an eye out for the article in the next issue of Straight Up.

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